effects of omega-3 PUFA (ALA) on WT1 gene expression in pancreatic cancer cell line (MIA PaCa-2)

Babak Rahmani (1)
Dariush Hamedi Asl (1)
Taghi Naserpour Farivar (2)
Mehdi Azad (3)
Mehdi Sahmani (4)
Nematollah Gheibi (2)

1-Department of Molecular Medicine, Faculty of Medical Sciences, Qazvin University of Medical Sciences, Qazvin, Iran
2-Cellular and Molecular Research Centre, Qazvin University of Medical Sciences, Qazvin, Iran
3-Department of Medical laboratory sciences, Faculty of Allied Medicine, Qazvin University of Medical Sciences, Qazvin, Iran
4-Department of Clinical Biochemistry and Genetic, Faculty of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran

Corresponding authors:
Nematollah Gheibi, PhD
Cellular and Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran
Phone: +982833375160
Email: ngheibi@qums.ac.ir ; gheibi_n@yahoo.com
Mehdi Sahmani, PhD
Mailing address: Dr. M. Sahmani; Department of Clinical Biochemistry and Genetic, Faculty of Medicine, Qazvin University of Medical Sciences, Qazvin – Iran
Phone: +982833328213
Email: m.sahmani@gmail.com

Abstract
Background: Cancer starts by cells acquiring a number of characteristic alterations especially abnormal cell growth. These properties reflect faults in signalling pathways in cancer cells. Wilms' tumor 1(WT1) acts as a tumor suppressor by negative reg-ulation of WNT/beta-catenin signaling pathway. The role of WT1 in many cancers has been studied.Aims: To evaluate the WT1 gene expression alterations in response to different concentrations of omega-3 PUFA alpha linolenic acid (ALA) in pancreatic cancer cell line (MIA PaCa-2) in a time dependent manner.Methods: MiaPaca-2cell line was cultured in monolay-ers. After that began the cells treatment with omega-3 fatty acid (ALA) using different concentrations of 25, 50, 100, 250, 500 and 1000 μM for 24, 48 and 72 hours. The RNA was extracted from both control (untreated) and treated cells. Viability was checked by MTT as-say and WT1 expression was evaluated by RT-PCR.

Results: Real-time RT-PCR analysis showed that the level of WT1 mRNA, was decreased after 24, 48, 72 hours treatment with omega-3 fatty acid (ALA) for 100, 250, 500 and 1000 μM

concentrations but not 25 and 50 μM. Data obtained from MTT revealed an-tiproliferative effects of omega-3 fatty acid (ALA) for 100-1000 μM concentrations but not 25 and 50 μM. Conclusion: Our findings indicated that the cell vi-ability and level of WT1 mRNA was decreased dur-ing Omega 3 ALA Treatment. So, it a potential role of Omega 3 in prevention or as a supplementary for pancreatic cancer treatment has been suggested

.Key words: omega-3 PUFA (ALA), pancreatic can-cer, MIA PaCa-2, WT1.

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